



Conclusion: Stereotactic reirradiation with CyberKnife for recurrent brain metastases, seems to be a safe and effective approach in selected patients. However, in the absence of prospective trials, no recommendation can be strongly established.

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New aspects regarding the radiation of thalamic gliomas

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Purpose or Objective: Thalamic tumours represent 5.2% of all intracranial tumours and are typically diagnosed in the paediatric population. These tumours arise from glial cells with an aggressive behavior and a high grade histology. They have a poor prognosis. The aim of this study was to find new approaches for defining the clinical target volume for these tumors.

Material and Methods: Clinical data were collected from archived files of 30 patients diagnosed with thalamic gliomas based on pathologic and radiologic criteria.

Results: Three patterns of tumor spread were found. The first pattern followed the thalamic tributaries of the posterior part of the internal cerebral veins. These were the anterior and superior thalamic veins. For the second pattern the close proximity of the internal cerebral vein branches of the superior thalamic veins was a potential route of spread between the medial surfaces of the thalami. In addition to spread across the midline tumours could also spread along the adjacent tectal, pineal and/or vermal. The third pattern of thalamic tumor spread was found in gliomas which use the anterior tributaries of the internal cerebral venous architecture of the posterior and inferior branches from the basal vein of Rosenthal.

Conclusion: Thalamic gliomas spread upon the peritumoral architecture of the perivenous/subglial Scherer structures and this knowledge should be used for redefining the clinical target volume for radiation therapy in thalamic gliomas

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Outcomes of patients with 4 or more cerebral metastases treated with stereotactic radiosurgery

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Purpose or Objective: Evidence for the use of stereotactic radiosurgery (SRS) to 1-3 brain metastases (BM) can be derived from historic prospective trials. With improvements in the ability to control systemic disease, better access to SRS and concerns with WBRT associated neurocognitive toxicity many institutions now offer SRS to patients with greater than 3 metastases. The purpose of this study was to review local control and survival outcomes of patients with 4 or more BM treated with SRS.

Material and Methods: Patients with BM treated with SRS for 4 or more lesions between June 2011 and April 2015 were identified from a prospective database. Patients were deemed suitable for SRS if they had preserved Karnofsky performance status (> 70), controllable systemic disease and an estimated prognosis of > 6 months with a total intracranial metastatic volume of < 20 cm³. Local control and overall survival rates were estimated using Kaplan Meier curves.

Results: A total of 16 patients (median age 54 years) with 85 lesions were treated with primary pathology as follows: breast 3 (18.6%); lung 5 (31.3%); melanoma 6 (31.3%) and others 2 (12.5%). Median number of lesions treated was 5, with median total volume of BM per patient of 1.63cm³. Minimum follow up post SRS in all patients was 6 months. Six (37.5%) patients had received previous WBRT. Eight patients (50%) experienced distant intracranial relapse, 6 (75%) of whom had not received prior WBRT. Of these 6 patients; 3 (50%) received salvage WBRT, 2 (33.3%) were suitable for further SRS and 1 (16.7%) refused further intervention. Of the 10 patients who had not received WBRT prior to SRS, 6 had confirmed distant relapse. The median whole brain radiotherapy free survival (i.e. time from initial SRS to either salvage WBRT or death) was 6.1 months. Eleven lesions (12.9%) recurred locally after a median of 226 days (range 85 - 235) post SRS. Median overall survival was 8.3 months (range 21 - 548).

Conclusion: The median survival in this series suggests there may be a group of patients with greater than 3 metastases that could benefit from SRS. Although patient numbers are small, this data may suggest that durable whole brain free survival (an important quality of life outcome) may be achievable in patients initially treated with SRS only.

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Survival, clinical response and prognostic factors in the reirradiation of recurrent brain tumors

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Purpose or Objective: The primary objective of the study is to assess the survival and quality of life after re-irradiation of relapsing malignant brain tumors. The second objective was to evaluate the influence of some prognostic factors on survival.

Material and Methods: Fifteen patients received radiation re-treatment for relapse in primary brain tumor between October 2011 and May 2015. The interval between two consecutive treatments was at least 1 year. Treatment was carried out with Conformal Radiotherapy (3D-CRT). The total dose radiation of the first treatment was 60 Gy, while the second treatment was 40-50 Gy. During follow-up, patients were evaluated at regular intervals both in taking drugs and corticosteroids for the performance status. Radiological response was evaluated by examining all available imaging